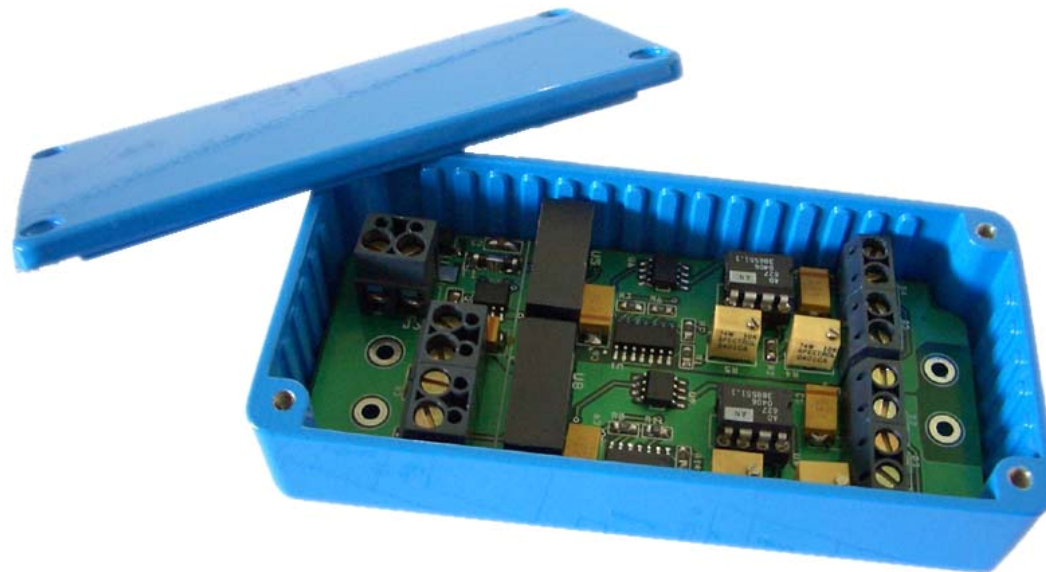


SGA01 Strain Gauge Amplifier

User Guide





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Introduction

Racelogic's SGA01 is a twin-channel, user-adjustable strain gauge amplifier. Each channel is designed for full-bridge operation, but can be used with half-bridge and quarter-bridge load cells if necessary, as discussed in the "Connection" section of this manual.

Each channel is DC isolated, with an output range of $\pm 9V$ and a signal gain adjustable between approximately 25 and 1000.

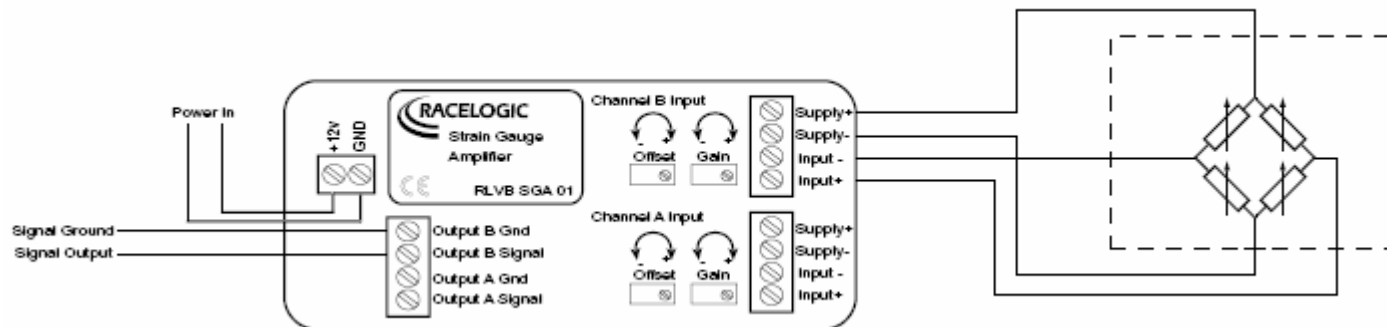
Connection to the SGA01 is made via screw terminals, with mini cable glands to allow wires to be run out of the unit when the lid is in place, preventing interference with the screw terminals and the scale and offset adjusters.

Connection

Wires can be run into the Strain Gauge Amplifier using the three mini cables glands. This allows the lid to be replaced, enabling secure connections to the internal screw terminals without leaving them or the scale and offset adjustment screws exposed.

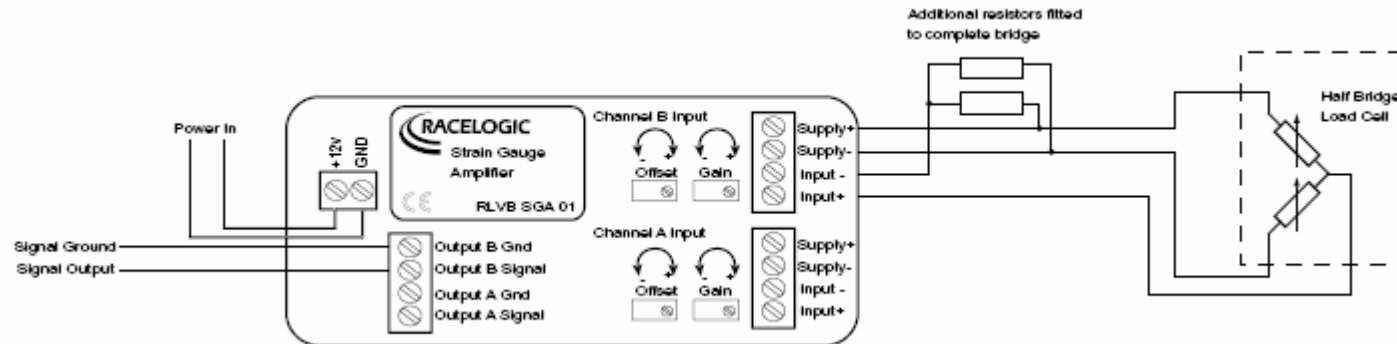
This section details connection methods for use with full bridge, half bridge and quarter bridge circuits.

Full Bridge Circuit



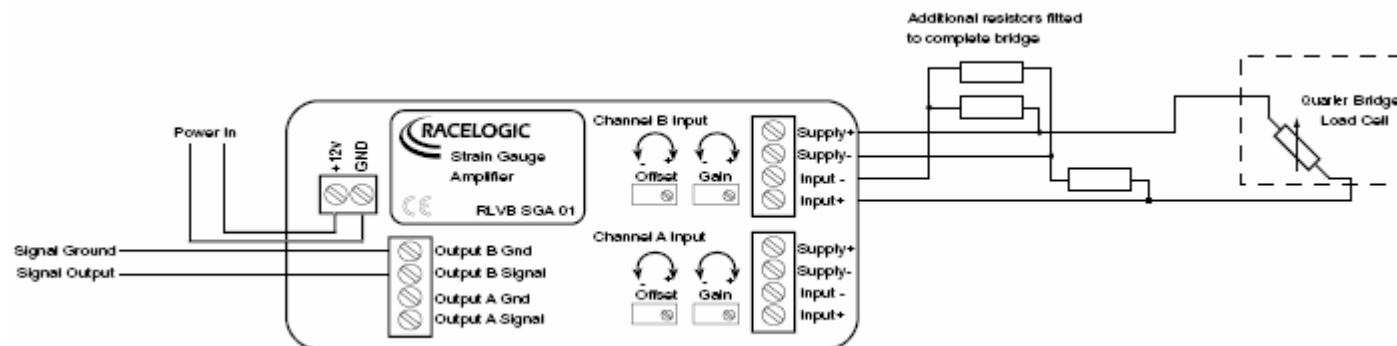
When using the SGA in conjunction with a full bridge load cell, no additional equipment is required. Simply connect the load cell to the SGA as shown in the diagram above.

Half Bridge Circuit



When using the SGA with a half bridge load cell, two additional resistors must be placed in the circuit. The resistors should be rated to the same value as the maximum resistance of the load cell's internal resistors and must be placed as shown in the diagram above.

Quarter Bridge Circuit



When using the SGA in conjunction with a quarter-bridge load cell, three additional resistors must be placed in the circuit. These resistors should be rated to the same value as the maximum resistance of the load cell's internal resistors and must be placed according to the diagram above.

Calibration

Calibration of the Strain Gauge Amplifier takes place in two steps, or two steps per channel if more than one channel is being used: offset calibration and scale calibration.

First calibrate the offset by subjecting the load cell to the conditions that relate to a zero value (typically no load). With the required load applied, adjust the “Offset” screw for that channel until the output voltage reads 0V.

Next, calibrate the scale by subjecting the load cell to a known non-zero value. With the required load applied, adjust the “Scale” screw for that channel until the output voltage gives the voltage desired for the applied load.

Repeat for the second channel if necessary.

Specification

Supply Voltage	6V – 18V DC
CMRR	90dB typical (77dB minimum)
Bridge Supply Voltage	5V \pm 2mV
Output Range	\pm 9V
Gain	25 – 1000 (adjustable)
Operating Temperature	-40°C – +85°C

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Revision	Date	Description	Author
1	24/07/2007	First Draft	JH
2	11/01/2008	First Issue	JH
3	30/04/08	Updated contact details	MG

30/04/2008